

Remondino. (P. C.)

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RELATION TO
RENAL DISEASES.

BY

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*Reprinted from Southern California
Practitioner.*



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THERE is an impression that Southern California possesses a climate aggravative or productive of renal disorders. This impression has its origin in our seeming low temperature, prevailing northwesterly winds blowing off cool and brisk from the Pacific ocean, and the very insensible character of the perspiration peculiar to this region.

Experience and observation teach us the fallacy of this impression; and by comparison of our climatic conditions with those of some other known and well understood locality or region possessing coldness, humidity and wind force or velocity; all more pronounced and in a much greater degree than our own; and then a careful study of the vital statistics of those same regions will convince us that coldness of the atmosphere, a high relative humidity, even when associated with brisk sea winds, are not factors in producing the so-called renal diseases; but that on the contrary such conditions, if uniformly present, are prophylactic and curative.

The study of the relation of seasonable meteorology to disease has fully established the fact that variability, and not cold or moisture, is the principal agent in producing disease; and further, that where uniformity leans toward a low temperature, with a moderately high humidity, less disease and a lower death rate prevail than where the opposite condition exists.

* Read before the Southern California Medical Society, at their Semi-Annual Meeting, San Diego, Cal., June 5 and 6, 1889.



Great Britain furnished the most reliable data as to meteorological conditions and vital statistics whereby to arrive at a conclusion as to the relative merits of such a climate as now under discussion, and to contrast its effects with those of opposite conditions.

The position of England and Scotland, between the Atlantic with its Gulf Stream on its western shores, and the waters of the North Sea on its eastern shore, gives to its two shores climates of widely different conditions. The people are of nearly like habits, and the result of the effects of climate in developing or exempting man from renal diseases are so pronounced, and the nature and conditions of the climate can so well be delineated and described, as to leave it beyond any question of doubt, that certain localities are liable to, and others are exempt from renal affections, from climatic effect alone.

Water was—and by the unprofessional is still—supposed to be the great factor in kidney disease, but it is well known that its quality has not even the property of developing stone if the climatic conditions are not favorable. Magist, of Mobile, in the summary of his paper on the subject, read before the International Medical Congress of 1876, does not even enumerate the quality of the water drank among the causes of calculus, but mentions climatic changes and an arrest of the dermoid functions as an active cause, and of the seven causes mentioned, the first five are of climatic origin.

From Dickinson we learn that in the British Islands the correspondence between the amount of renal disease and the variability of the climate is very striking. On the western coast washed by the Gulf Stream the winters are warm, but the summers have barely warmth enough to ripen wheat. As a uniform temperature prevails throughout the year, diseases of the kidney are not half so frequent as on the eastern side of the kingdom bathed by the waves of the North Sea, where the weather is much hotter and colder than on the Atlantic shore, and undergoes much larger and more frequent variations.

According to the same author, renal diseases do not flourish where there is heat enough to allow of the successful cultivation of wheat, but not so much so as to replace deciduous trees by the palms and other endogenous plants characteristic of tropical climates.

There is one example of the British climates, in its condi-

tions and in its relation to renal disease, that I wish to call your attention to, in comparison to our Southern California coast climate; this is to the climate of the Shetlands—much colder and bleaker than our own—the annual mean temperature being according to Reelus, 15° colder; besides the winds are cold, high and boisterous. The Shetland winter, although windy and stormy, is devoid of frost as its summer is devoid of heat, the whole year being of a neutral complexion with a uniformity similar to the Southern California coast, though much colder. Of these islands, it is found that diminished variation and freedom from renal disease go hand in hand, and that although the summer is the most uncongenial in the kingdom, and the whole year may be said to be one of steady and uniform cold weather, they are less affected with renal disease than any other portion of Great Britain.

To further prove that climate is the factor in exempting from renal affections, Sutherland, the northernmost county of Scotland furnishes unequivocal evidence. On its western shore is the Gulf Stream and uniform temperature, with diminished amount of renal disease; while on its eastern shore, bathed by the North Sea, with a climate of great and sudden variations, renal diseases are prevalent. From the above statistical facts, mainly the results of the researches of Dickinson, we arrive at the natural conclusion that the climate giving the greater equability, with a leaning toward a high relative humidity and a moderately low temperature as constant in their ratio, must be the one most favorable for the prevention of such diseases as now under discussion.

HIGH RELATIVE HUMIDITY AND LOW TEMPERATURE.

I will give you the *résumé* of some investigations that have been made in determining the effects of moisture and a low temperature on the animal economy, not only as interesting statistical facts, but of importance to the students of the effects of season and climate on renal disease. As an introduction to the subject the following is very applicable:

Dr. George H. Rohé of Baltimore, in a paper entitled "The Meteorological Elements of Climate and their Effects upon the Human Organism", read before the Section on Climatology and Demography of the late International Medical Congress, made the following remarks: "Great importance has

been attributed to moisture of the air as an element of climate. While the morbid effects of *dampness* in the atmosphere are acknowledged in the causation of rheumatism and neuralgia, a wide difference of opinion is still current in the profession regarding the remedial or morbid effects of a humid climate. There is good reason to believe that the insalubrity of a high humidity has been greatly exaggerated. The testimony in favor of a marine or insular climate in the most varied diseases is too positive to admit of denial."

Damp or moist and cold seasons have heretofore been looked upon as a prime factor in producing those forms of diseases coming from derangements of renal or dermoid functions, but investigation has shown that variability of temperature, great variation in humidity and barometrical pressure, with the attendance of other meteorological disturbance, are the real factors in increasing the ratio of these diseases. The morbid results are more noticeable during the spring months, and what follows locally in the case of frost-bites or chilblains as the result of transition from the effect of a very low to a higher temperature, may also be said to take place in a general or systematic condition, but more slowly in producing the diseases peculiar to these seasonal periods. But granting that this is the fact it still leaves out cold and moisture as a *direct* cause or factor of these diseases.

One of the first observers to give a definite shape to this subject and place cold and moisture as factors of physical disturbances in their proper light was Baron Larrey. During the campaign in Poland, in the spring of 1807, he remarked that during the 6th, 7th, 8th and 9th of February—although the troops were exposed in open *bivouac* to an extreme degree of intense cold and snow, and a severe frost existing during those days—that the soldiers did not complain, but on the night of the 9th and 10th the mercury ascended several degrees and was followed on the 11th by a thaw. Immediately frost-bites and other local disturbances became prevalent, and many who escaped local injury fell victims to "diarrhea, dysentery, catarrhal and rheumatic disorders, which may be attributed to the sudden change of temperature." After the battle of Eylau, the troops suffered greatly from the thawing, but in the middle of March snow and intense cold returned, "contributed greatly in preventing disease, in restor-

ing the wounded and reëstablishing the health of the troops." So firmly convinced was Baron Larreg² of the morbid effects of atmospheric variations, and of the harmless effect of extreme cold, *if constant*, that he affirmed that severity of cold weather by itself was harmless, provided *the cold remains the same*.

As a sequence of custom many have the opinion that our moderately high constant humidity must be detrimental to health, and more than once has the winter climate of California south of Point Conception been termed moist, in contrast with the *dry cold air* of the plains or the upper Mississippi valley for the same season. The following table from the U. S. Signal Service Report will show that the supposed dry air of those inland regions is in some instances more saturated with moisture than our own sea-shores during the winter season :

	Mean Relative Humidity.		Mean Tempt. for Month.	
	July, '77.	Jan., '78.	July, '77.	Jan., '78.
Los Angeles, Cal ..	61.8	61.0	71.1	54.1
San Diego, Cal....	73.8	68.0	68.9	55.0
Bismark, Dak.....	63.6	77.4	70.9	17.5
St. Paul, Minn....	62.1	79.7	73.6	22.5
Denver, Col.....	31.9	52.7	73.8	26.1

Consumptives and invalids have often been benefited by a winter spent in Canada, even as far north as Quebec, and I knew many who did improve during the winter months in Minnesota, but all the benefits were due to the *constancy* of those conditions, even if consisting of cold with a high relative humidity, the equableness being the healthy factor. This is the great charm of the Southern California climate, *its constancy* associated with a temperature perfectly temperate and with a like constancy in its percentage of humidity and barometrical pressure, without the dangerous seasonal changes or the still more hourly or daily great range of temperature or variation in the atmospheric humidity or barometrical pressure.

S. Weir Mitchell found what was contrary to the accepted theory, that cold moist months, marked by low mean temperature and a high relative humidity, furnished but a small proportion of attacks of chorea; that with the rising temperature of the spring months in March and April cases became more frequent, the ratio being kept up into the warm season when it gradually declined, remaining low for the autumn and winter.

The condition of seasonal weather in inducing suicide is positive. According to Allan McLane Hamilton, suicide is more common during the summer, and he quotes Forbes Winslow in asserting that in London the foggy months have relatively fewer suicides than the clearer months. Several years observation give double the number of suicides during the middle of summer relatively to those of December.

Morselli, in his work on suicide, in speaking of the relation of seasons to suicide, mentions the fact that for a long time it was maintained that suicide was more frequent in damp, cloudy and dark weather, as such a condition was thought to favor the development of melancholy passions. Morselli carefully gathered all the possible statistics in relation to this subject and found the following results: Those countries which gave the maximum number of suicides in the spring months—March, April and May—were three countries in the north of Europe *where the change between cold and warm seasons is sudden, and acts severely on the constitution*; on an average that the transition period between spring and summer and especially the month of June exercises the most positive influence on suicidal tendency, and that winter, particularly December, the negative. In his summary he finds that suicide is not so much the result of the intense heat of the advanced summer, as to the influence of the early spring and summer, which seize upon the organism not yet acclimated and still under the influence of the cold weather. Then again we find variability and sudden change of weather, by their internal influence on the organism, producing a complex result from induced physical change in man. That meteorology is a prime factor in this cannot be doubted; as stated by Morselli, the regularity in the annual distribution of suicide is too great for it to be attributed to chance or the human will. From Richardson's work on Preventive Medicine many interesting facts can be learned in regard to the relation of season to diseases. The following tables from the above work are very instructive. It will be particularly noticed that the first period, termed the period of dampness and cold, has the least relation to kidney diseases.

Buchan and Mitchell, in treating of atmospheric temperature and damp in relation to disease, divided the London year into six periods, each of which has a climate peculiar to itself. The periods are as follows:

The first period, from the fourth week of October to the third week of December, termed dampness and cold.

The second period, from the fourth week of December to the third week in February, marked cold.

The third period, from the fourth week of February to the second week of April, marked by dryness and cold.

The fourth period, from the third week of April to the fourth week of June, termed dryness and warmth.

The fifth period, from the close of June to the fourth week of August, termed heat.

The sixth period, from the first week of September to the third week of October, termed dampness and warmth.

The distribution of renal disease and the aggravating influence thereon by the different periods of differing temperature and humidity is very interesting and instructive, if not surprising. The maximum number of kidney complaints happened during the second or cold period; those from Bright's disease during the third or dry and cold periods. Gout finds its maximum deaths during the fourth or warm period. During the fifth or heat period deaths from kidney disease in general—Bright's disease notably—and pleurisy, pneumonia, bronchitis and asthma attain their minimum, as might be expected, and during the sixth or period of dampness and warmth, gout finds its period of minimum deaths.

Buchan and Mitchell, in their researches in the relation of weather and season as causes of disease, give also a fact corroborative of the Tables of Morselli as well as of his deduction that suicide is more attributable to meteorological causes than to chance. In London the period of deaths from causes classed under the term *from privation*, has its maximum number of deaths from December to the middle of April, and the minimum from the middle of April to the end of November. This is as might be expected. But it is also well known that only a very small percentage of those suffering from varied privations affecting vitality succumb; it then follows that the largest percentage of those who by physical privation and suffering would suicide, would do so when depressed by the above mentioned influences, bring in the maximum number of suicides contemporaneous with the maximum deaths from privation. Here the much greater effect of atmospheric variability on the organism in this respect than that exercised by

physical suffering, which may even bring the mind to the verge of desperation is self-evident, for the minimum suicides take place during the period of maximum deaths from privation, and the maximum suicides in both London and New York take place during the period when deaths from privation hardly ever occur.

Dr. William Farr, by careful computation from British statistics, concluded that after the twentieth year of life the danger of dying from a fall of temperature is doubled every nine years.

From all the above statistical relations, we establish one positive fact: that atmospheric cold and moisture are not such factors of disease as formerly inferred; but that great or small, atmospheric variability in proportion to its suddenness is the great factor, and that those periods of the year in which occur seasons of greatest variability are also those of damage to the human organism.

Phthisis pulmonalis and renal disease go hand in hand in prevalence as well as in election of climatic regions. Either north or south, as the regions of the temperate zone approach warm or colder countries, these diseases diminish. Toward the tropics endemic diseases of peculiar fatality and epidemics of sweeping fatality are encountered. The very animal and vegetable kingdoms seem to conspire in their venomous products to make it inhospitable to man. Between the virulence of the insects and reptiles and the poisonous plants or the morbid exhalations from decaying vegetation that loads the air with its miasma, and the immediate effects of the conditions of the climate—man leads an uncomfortable and precarious existence. Moseley, a long resident of the tropics, a good observer and a noted physician of his time, after a calm survey of the climates of the West Indies exclaims, "There is an erroneous notion of the climate of England, But take it for all in all, the climate of England is the best on the habitable globe." Benjamin Moseley wrote in 1787. He was a physician of the mold of Sydenham; a calm observer and comparer of the *facts* of nature, and no theorist. That intelligent physicians were then in possession of the proper views on climatic influences, even as corroborated by recent statistics, is astonishing, considering the meager sources of information of the times, and show to what an extreme de-

gree the individual observing faculties were cultivated. A few extracts from Moseley's treatise will be interesting.

"Heat and *moisture*, uninterrupted, are not the cause of so much mischief as is attributed to them.

"Sudden changes and transitions in every climate are prejudicial to the human frame. In temperate climates their influence is exerted chiefly on the weak and relaxed. An eastern wind in England is perceived by invalids in their very beds." Moseley noticed that a falling temperature, no matter how slight the fall, was more productive of harm in the tropics than elsewhere. A fall of eight degrees F. from the usual temperature produces great disturbance, but variability is not of usual occurrence in tropical countries. As to diuretics he possessed the enlightened views of our best author on the subject, "When I recommend the drinking of nothing but *water* in hot climates I expect to have but few disciples, . . . especially among those that stand in most need of it, such who have broken down their constitution by intemperance." "Those with inflammatory diathesis, who use only water for their common drink, will never be subject to troublesome or dangerous diseases."

We will now return from the contemplation of southerly conditions. To the colder regions on the other side of the temperate but variable zone. Here none of the dangers of the tropical regions are to be found. Man escapes from phthisis and renal disorders, but does not run foul of more quickly fatal dangers or disorders. The dermic diseases that effect even the temperate but too warm climate of Madeira are unknown in the North. Hepatic diseases and intestinal derangements that seem to replace the renal diseases in tropical and subtropical climates are absent. There are no endemic diseases to speak of and no dangerous epidemics start from the northerly belt like those originating in the West or East Indies to carry death even throughout the temperate zone. In this region of colder but even temperature man developes to perfection; and his powers, both mentally and physically, of action or of passive endurance, reach their maximum.

Formerly it was believed that warm climates did not tend to increase of weight as much as cold. This was also applied to conditions of cold or warm weather. Deficiency of diet among the dwellers of warm countries tends to a spare phy-

sique. But investigation has proved that the well-to-do city dwellers in the warm African or Asiatic countries are the opposite of physique of the lean and lank starvation-facing dweller of the fields. The result of the careful experiments of Mr. Milner of Wakefield, given by Richardson, extending for a period of ten consecutive years, and covering 44,000 weighings—the subjects being prisoners and all under precisely similar conditions as to housing, diet, or dress and general surroundings—gave the three first months of the year as of loss of weight, February being the month of greatest loss; then a gain in weight from April to August, *June and August being the months of greatest gain*. Here again is a patent factor in disease. As remarked by Sir Henry Thompson, in his *Diet in Relation to Age and Activity*, in speaking of increasing weight when past middle life, "Not one man in fifty lives to a good old age in this condition"; and again, "The typical man of eighty or ninety years is lean and spare." Variability of temperature produces this change, and the varying force of the functional activity of the different organs is prejudicial to their well doing.

SOUTHERN CALIFORNIA.

Taken all in all it may be said that the even equable temperature of insular regions, where for a whole year the weather is about alike in temperature, is the best and healthiest of climates. The localities where such a climate exists, with the temperature sufficiently low to meet all requirements, and at the same time have soil, sunshine, rainfall, winds and other climatic conditions favorable, are not many.

Gen. Greely, the chief signal officer of the United States, in an article on summer climates, speaking of such desirable combinations says, "There is possibly one place in the United States that such conditions obtain—a bit of country of about forty square miles, at the extreme southwestern part of the United States"—being the coast and foothill strip of Southern California.

Professor Agassiz, speaking of Southern California, remarked, "I have seen many parts of the world. This is one of the favored spots of the earth, and people will come to you from all quarters, to live in your genial and healthful atmosphere."

I shall not attempt a description of the physical conditions

that give Southern California its climate—space will not permit it. I will therefore confine myself to the relations of its effects on man. Since coming here, some sixteen years ago, I have carefully watched its effects. The inhabitants were then few and scattered, and as many of them were native born, an excellent opportunity existed to observe the good or bad effect of the climate, the existing diseases and their causes. One of the first facts to impress me was this, that the first comers on the occupation of the country by the Americans—army surgeons, soldiers or line officers, civil appointees (such as those who came with boundary commission), the tide observers, and other officers—made it their future and permanent home, many resigning their commission to remain. All seemed in the enjoyment of robust health and happy, and if ever sick only so from accidental causes. The Mexican part of the population was likewise healthy and, taken all in all, freer from disease than any people I had ever seen. Of the original Indians many still lived in the neighborhood or on their reservation, and they were likewise very healthy, and many personal examples of longevity were to be found among them, the date of founding the mission being mile-stones for reckoning or computing their ages—old, withered and wrinkled—many ranging from 90 to 140 years of age, gradually passing into the condition of euthanasia, where death comes as sleep. The Mexicans and Americans seemed to have a like increased tenacity to life. One would naturally conclude that the springs so vainly sought for by Ponce de Leon must be in this favored region. There was absolutely no disease that could be called endemic; seasonal disease did not exist; malaria and miasma were unknown; children were born and went through the first period or year of life—that elsewhere, through the different diseases that beset that period, furnishes on an average twenty per cent of the deaths—without any danger. This lack of disease and mortality at this age was to me very striking, having been accustomed to thirty and forty per cent mortality—during my last year's residence in Minnesota the death rate of those under one year having reached forty per cent of the total deaths. Not only was there the lack of mortality, but none of the diseases incident to that period of life existed, although children were not lacking, but quite the reverse.

The hygienic condition of many of the *adobe* houses of those days was of the poorest—especially as to ventilation; the space under the floor being absolutely unventilated, and no provision made whatever for the room ventilation when the doors were once shut. In those days only the Central Pacific railroad communicated with the East, and we had nearly five-hundred miles of stage routes to reach the railroad. As a consequence the contagious or infectious diseases could not reach us—diphtheria and the like were strangers to us. Pulmonary and the general diathetic diseases—nervous or renal diseases—were absent, and only after the great influx of invalids—with remnants of spare lung, liver and kidney, that have since peopled the country, and by aggregation and crowding—has Southern California been subject to diseases that arise as a result of “civic miasm”, and even then their appearance is under a modified form lacking the intensity of type, and the mortality not reaching thirty per cent of that in like diseases elsewhere. Typhoid fever is hard to discriminate from simple miasmatic fever, so mild is its type. Searlatina and measles run a mild course, and without the usual accessory dangers. I have never seen a secondary disease following searlatina.

Of diseases of the respiratory organs I have seen two cases of pneumonia in sixteen years, both resulting from chilling after overheating. In both cases both lungs were congested, but both made a good recovery without any structural lesion remaining. Of bronchitis or asthma or pleurisy I have seen none generating here. Out of some fifteen cases of penetrating and traversing gunshot wounds of the lung, only one case was complicated with pneumonia. Some years ago an Indian of about twenty years of age was shot through the left chest, in being captured after committing a murder. The wound was from a rifle ball—from before, backward. I saw the man some hours after the receipt of the injury, removed the ball from the fleshy cushion near the spine, where it was imbedded, and attended him to his recovery. He suffered from pain, some constitutional disturbance from the nature of the injury and his imprisonment, as well as from several severe hemorrhages—the ball in its course having severed some large vessels. Immediately on his recovery his trial, conviction, sentence and execution took place.

As may be inferred, I did not lose the opportunity of making

an examination of the wounded lung—such opportunity not being frequent. Hennen, after an extensive military practice, complains of never having had one, and I have not seen any mention of any in our military surgeries. The wounds of entrance and exit in the interior of the chest wall were marked by light cicatricial thickening—the lung itself was perfectly natural. The track of the bullet was in some part of its course marked by a thin membranous cord which evidently was disappearing—no pleural adhesions front or back—and where the bullet track had been the lung exhibited no sign of any structural change. There was no pleural effusion, or any sign that indicated a departure from health.

Of the other cases, one was a case of shotgun wound with buckshot traversing the left lung like a grape shot, and most of the others were with ordinary large size pistol balls. Many of these have now been of many years duration—and I have not seen a single bad result in the shape of lung disease. The post mortem condition of the executed Indian furnishes the probable solution of the changes that took place in the cases, as recovery in all cases, and disappearance of any remaining trouble, was as rapid as in the Indian. An experience in the hospitals of our Civil War, and my service as surgeon in the French Army during the late Franco-Prussian war, gave me opportunities for observing chest wounds—but nothing like the results obtained in Southern California are to be met with in the experience of other regions in chest wounds. A climate giving such results is a very good one for pulmonary diseases *in any stage*. Rheumatic affections, hepatic or intestinal disorders do not exist from climatic causes—of renal diseases, neither climate nor water produce them—and I have not seen any of the older inhabitants ever complain of any kidney disease from either cause. Dujardin-Beaumetz recommends Southern California for renal diseases; so does Dr. J. P. Widney, and the number of invalids who originally came here suffering with some form of renal disease, who have improved, and the many whose health has been firmly reëstablished, confirms the opinion I previously formed of its beneficial effects.

Although on the 32d parallel of latitude, whaling and sealing is carried on for even several hundred miles further south along the coast and islands of Lower California. This bespeaks cool ocean water. The average temperature of the

Pacific in July and August is about 60° F., and about 56° for the month of December and January, at San Francisco. At the Farallones Islands, some thirty-five miles due west of the latter, Hittell gives the constant temperature of the ocean as never varying more than a degree or two from 42°. In Southern California it is warmer by some few degrees than at San Francisco—the coast from Point Conception to San Diego having a southwesterly exposure—forming a gulf, with its outer line protected by the chain of large islands, between which and the main shore runs the Santa Barbara Channel, the inshore current of which runs northwesterly, parallel with the coast, is much warmer than the ocean water, and finally meets the California current at sea off the Point, marking the northwest limit of this gulf. The California current flows southward and is a mixture of the Japan stream and a colder stream, which in higher latitudes flows beneath it. This sea or gulf of Southern California, with the high spur of mountain chain jutting into the sea at the Point, literally divides California into two distinct climates—the high mountain chain and the trend of the coast throwing the colder ocean water off the coast and giving to Southern California, by the eddying and warmer waters of its gulf, a milder and more genial atmosphere than that of the middle portion of the coast, giving also less fog, and consequently more sunshine, from the greater distance of the colder waters from the shore.

This explanation is given to make plain why our climatic conditions exist, why our cool nights and equable days. Now, it needs hardly be told that uninterrupted nights' sleep and rest is one of the greatest requisites *in all* renal disorders. Here the nights are of unvarying coolness and equability, always cool enough to require a pair of good blankets, and never so cold as to interfere with sleeping with open windows. The writer for the last two years has not had a fire or stopped the windows in any of his apartments, day or night, even with a family of children.

The days are long and for the most part sunny, there being hardly six days in the year when the sun does not shine for some hours of the day—the 20th of June being fifteen hours and seventeen minutes in length, and the 20th of December being ten hours between sunrise and sunset. The days are never oppressive, and the sun's heat does not have the same

effect as in the Eastern States; even in the interior valleys, where the heat is great, I have never heard of a case of sun-stroke in man or hydrophobia in dog. The invalid can take out-of-door exercise, without any detriment, any day in the year, and it is common to hear a discussion as to whether it ought to be called a winter or summer resort, so even is equableness of the seasons and so genial the climate—that whether coming into it in summer or winter from elsewhere the change is always agreeable. To the one who, by either heredity or aquisition, may be liable to or is already a sufferer from any form of renal disease, such a climate is a paradise. Not only does he obtain a new lease of life from the mere *change* of climate, but comes into a region where there is a total absence of those intercurrent diseases that lay in wait to lay low those so afflicted, and places him in a position to lose through climatic influences alone what either paternal indiscretions in living, or his own, may have bequeathed in the shape of tendency to renal disease.

In the comparisons of climatic conditions and the stress I have placed upon certain requisites, I do not wish to be misunderstood. The moist cool air of the Shetland and the moist cool air of a north room may be alike in some respects, but one totally different in their conditions, and more so in their effects—just as the same effects could not be expected from an atmospheric temperature of 120° or the same temperature in a Turkish bath, where the conditions are all different. As to humidity—relative humidity—of the atmosphere, there are certain other conditions that modify its effect. It is well known to those who have made a practice of preserving botanical specimens, that Southern California is a locality where that process requires the least of cares. I have never lost or have had injured any of my surgical instruments by rust. Leather articles do not mold; my heavy riding boots are now twelve years old, and have lain here and there without care, and are as good as ever. Pianos are easily kept in tune; and strange as it may seem meats are daily cured by simply being hung in the air, and left to dry; the hay and grasses desiccate on the ground, no decay of the vegetable tissue taking place; and animals killed or dying on any locality mummify. There is aside from its equableness an aseptic condition of air not to be found in many localities.

According to the testimony of many observers, Madeira with its equableness has just the reverse properties, although the moisture in the atmosphere is not much greater than ours. There botanical specimens are hard to prepare; books and leather mold; pianos and string instruments are hard to adjust and to tune, and steel can hardly be kept free from rust, all possibly due to the higher temperature and lack of aseptic condition of the air.

I have not seen any of the enervating results that some imagine must follow either from a visit or residence in this climate. The results are quite the reverse; on coming here one at once experiences an increased capacity for food and sleep and a general increase of all the faculties of animal life. In females it is not uncommon to have a return of the menses—and even pregnancy follow, several years after those functions had ceased in other climates. I have had several such cases—one of which was being treated for dropsy following change of life. The human body, if in healthy condition, finds itself rejuvenated by some ten years. An even weight is soon acquired, which remains about constant, and from my observations our people have about as much power of exertion and endurance as any class.

One feature of our climatic condition is that of food supply—an important item in treating kidney disorders. The temperature of our waters furnishes the best of fish—a species of tunny being fine eating, with flesh like fowl. Besides, there are the sea bass, sole, rock cod, mackerel, and the barracouda—a very fine fish, both in consistency and flavor—and an endless variety of smelts, sardines and other small fish. The oysters, like those of the west coast of Europe, are not to be compared to the eastern article, but the shores abound in fine clams and other shell-fish and in shrimps and crayfish of fine flavor. The peculiarity of the climate gives green vegetables and some sort of fresh fruit during the whole year, and no region can be compared to Southern California for its poultry or game—thus giving a dietary that cannot be monotonous, and at the same time be nutritious and such as the disease may dictate.

We will now turn our attention to a strip of coast to which not only Europeans, but even Americans, flock in search of health. We will first see how that strip of coast is consid-

ered by men who have recorded their views, and the result of their investigation into the prevalent or endemic diseases. This strip of coast may be said to be the Spanish, French and Italian coast of the northern shores of the Mediterranean sea.

THE BALMY MEDITERRANEAN SHORE.

Chambers, a reliable authority, speaking from personal observation, in his remarks on rheumatism and gout, says they may improve by a visit to that coast, but that a second season may not only be without benefit, but absolutely pernicious. He also observes the climatic dangers for those subject to excitement of the circulatory system, and the risks to the apoplectic or those subject to any congestive inflammation, also that functional nervous disorders were intensified or sometimes brought about in previously healthy parties. This careful observer noticed one fact—one of great bearing on what Richardson would call the unity of origin of disease—but in this instance indicative that uric acid and imperfect renal action were at fault, namely, that in the summer diarrheas of Italy they proved rebellious to even chalk and opium mixture, readily yielded to lemon juice. This vegetable acid, it will be remembered, was introduced into English practice by Owen Rees, of Guy's Hospital, and only its cost prevented it from becoming a general remedy in gouty or rheumatic cases. Another significant fact pointing to imperfect renal action as the cause of those summer diarrheas, and that a process of elimination was the principal cause of the disease—was that castor oil in small and oft-repeated doses was the most efficacious way of treatment.

Chambers also noticed the unfavorable change of air and temperature at sunrise and at sunset, terming it even dangerous to the robust to sleep with open windows or to be exposed to its influence.

Bennett of Mentone does not mention the sudden variability directly, but indirectly, and from his remarks we are left to infer that the locality is not the balmy, congenial, uniform abiding place for invalids so much desired. Six pages of the work are devoted mainly in trying to explain the winds, their why and wherefore, and how to avoid their evil influence. The truth really is that Mentone, the most favored or noted of all the Mediterranean coast, is liable to irruption of winds of all degrees of temperature from any point of the compass at any

hour of the day, and these changes are liable to occur with that suddenness and frequency only appreciated by those who have lived there. Bennett's remarks that "those who are well—the strong, the healthy—can receive no harm whatever from a good blow, if well clothed and not heated by violent exercise"; or that "it is only detrimental to confirmed invalids, and they can easily avoid it," sufficiently show the dangerous character of the winds. As to the sunset hour, he "is persuaded that the danger is in the sudden and rapid lowering of the temperature at that time"; and as to the rest of the day—as regards dress—his advice is that the quality and quantity should be governed by "the consultation of a thermometer placed on the outside of a north room." Rheumatic pain he finds common, and in the gouty he finds that patients may enjoy a happy relief from habitual pain, but fails to notice that this is frequently done at the expense of an apoplectic attack, which is often the result of the relief.

Johnson, when driving along the coast into Genoa, faced one of those sudden mountain winds as "no muffling would keep the vital heat from flying off to mingle with this frigid current of air from the Alps." These mountain winds—liable as before remarked on a sudden from any point either as direct or as an undertow of all variation of temperature, humidity or violence—are the great factors in the mortality of the coast. I have noticed these winds on the whole extent of the French, Italian and Spanish coast wherever the mountains are close to the seaboard.

Kidd, in speaking on the kidney disease, instances the frequency of apoplexy and paralysis on the Riviera. Chambers gives some statistics worthy of consideration in connection with the death rate of Genoa with the London rate for comparison. When it is remembered that the British are subject, in an extreme degree, to the diseases mentioned, and that the coast climate of Italy is supposed to grant an exemption, it is a matter of surprise that British physicians don't send their patients elsewhere.

AN INTERESTING COMPARISON.

The comparison is as follows: Apoplexy and cerebral congestion in Genoa, 1 in 12, as to London, 1 in 40. In acute heart affections in Genoa the rate is 1 in 44, in London 1 in 606. Acute affections of the respiratory organs, 1 to 9 deaths

in Genoa, to 1 in 16 deaths in London. Of acute nervous diseases, the deaths were in Genoa 1 in 59, to 1 in 119 in London. The near relation and dependence of the above diseases, either as the direct result of kidney disease, or to imperfect action or interference with the functional activity of the renal organs, are too well known. Here we find the causes, extreme and sudden variability, present in a remarkable degree, and the diseases resulting or aggravated thereby present in as remarkable a degree of frequency and activity. Southern California gives in contrast a uniformity of climate unequaled with an equal or corresponding freedom from the above enumerated diseases.

METEOROLOGICAL STATISTICS.

Take San Diego and Los Angeles, ~~and~~ the United States signal station gives for an annual mean temperature 60.5°, an average annual dew point of 49, an average annual humidity of 70, prevailing direction of winds from the west, with an average of about 300 clear and fair days; and of the cloudy and rainy days my experience is that there are not six days during the year, but that out-of-door exercise can be taken, as our rains are mostly during the night or small morning hours. The days are not marred by high or unlooked-for winds, the wind always coming at its appointed hour, with its uniformity of temperature, humidity and force from its usual point. The day moves along with great regularity to sunset; at this hour there is a fall of about two degrees, with a rise of about one degree during the subsequent hour. The temperature then remains about stationary until after midnight, when there is a lowering of temperature, which gradually rises at the time of sunrise.

Some ten years ago Dr. Hearne, of the United States Signal Service, kindly instituted a series of meteorological observations, at my request, among which was one calculated to give the exact temperature one hour preceding sunset, the one at sunset, and that of the hour following, giving for the month the following respective means: 62.6, 60.1 and 60.8. The observations were made for the month of October. The season means are as follows: Spring 58, summer 68, autumn 62, winter 54. The mean maximum for the year is 67; the mean minimum for the year is 53.

The mean annual rainfall is about eleven inches on the immediate coast.

HOW IT AIDS THE INVALID.

By its uniformity and temperament it tends to temperance in diet, both as to quality and quantity, the appetite or physical needs never being either stimulated or depressed. There is also an important factor in the requirements of dress, the often required change elsewhere being a fruitful source of many physical disorders of which kidney diseases have more than their share. Here the same clothing, underwear and outer garments, are worn for every hour of the day as well as for every month alike, and strangers coming here for the summer need not bring any summer clothes, as they will be useless. The same clothing is worn at 10 A. M. in the month of July that is worn at 10 P. M. in January. On the Italian coast I have seen the invalid march forth in cool apparel with fan and sun-shade with the complexion of satisfaction beaming on every feature, and in one short hour return with a face like a freshly plucked goose, shiveringly hugging his sun-shade under his arm during his wild rush for warmer clothing.

Our climate does not drain the renal secretion of its water—the perspiration is insensible, and the excretion of urea through its natural channels is facilitated. In India, where the process is reversed, the drain of the water of the kidney secretion by the skin is, by Dickinson, enumerated as a cause for calculus. As before stated potability of the water does not exercise such a great influence as formerly supposed, water being rather more a vehicle for the propagation of zymotic disease than a generator of kidney disease. The water of Southern California, as far as a long observation goes, does not exercise a deleterious influence in any way; but, on the contrary, in addition to the ordinary drinking water, Southern California possesses mineral springs of virtue in the treatment of renal affections. The thermal springs of Warner's ranch at Temecula and Tia Juana in San Diego county; Arrow-Head thermal springs in San Bernardino county, and the thermal springs of Santa Barbara county, besides a number of others of lesser note, all of which have more or less influence in rheumatic and syphilitic diseases. The recently discovered California Waukesha spring, owned by the Coronado Beach Company, and of the Carlsbad spring at Carlsbad, on the California Southern railroad, are useful in many of the disorders. The waters of these springs give nearly the same

analytical result as the waters of Waukesha in the United States and Carlsbad in Germany.

One all important benefit of our climate not to be lost sight of is the fact that it is not a climatic season resort—*it has no season*—it is for the whole year—a fact that permits of removal to this region with a view to a permanent home, as the rapid developments of its varied resources promises to make Southern California the home for millions of inhabitants.



